

THE UNITED STATES DEPARTMENT OF ENERGY/NATIONAL NUCLEAR SECURITY
ADMINISTRATION HAS COMPLETED A FIVE-YEAR REVIEW OF THE PIT 6
LANDFILL AND SITE-WIDE OPERABLE UNITS AT LAWRENCE LIVERMORE
NATIONAL LABORATORY'S SITE 300

The U.S. Department of Energy (DOE) /National Nuclear Security Administration has completed the first Five-Year Review of its environmental cleanup of the Pit 6 Landfill and Site-Wide Operable Units at Lawrence Livermore National Laboratory's (LLNL) Site 300.

THE REVIEW PROCESS

Superfund law requires that the protectiveness of cleanup actions be evaluated every five years when contaminants remain at the site above levels that allow unrestricted access. The purpose of the Five-Year Review is to evaluate the progress of the cleanup remedy towards achieving the site's cleanup objectives, and whether the remedy continues to be protective of human health and the environment.

The Five-Year Review report summarizes the nature and extent of contamination and describes DOE's progress in cleaning up the Pit 6 Landfill and Site-Wide Operable Units. DOE's final Five-Year Review report for the Pit 6 Landfill and Site-Wide Operable Units is now available to the public at the LLNL Environmental Repository in the Tracy Public Library, 20 East Eaton Avenue, Tracy, CA 95377 [tel. (209) 835-2221]; the LLNL Discovery Center, Greenville Road at East Gate Drive, Livermore, CA 94551, [tel. (925) 422-4599]; and online at <http://www-envirinfo.llnl.gov/>.

SITE HISTORY

LLNL's Site 300 is a U.S. DOE experimental test facility operated by Lawrence Livermore National Security, LLC. Site 300 is used for the research, development, and testing of high explosive materials. Site 300 is located in the Altamont Hills between Livermore and Tracy, California. Site 300 was placed on the National Priorities List in 1992. The Pit 6 Landfill and Site-Wide Operable Units are two of nine operable units at Site 300 where contaminants have been released to the environment from past operations. A Site-Wide Record of Decision was signed in 2008 that established the cleanup remedy and cleanup standards for the Pit 6 Landfill and Site-Wide Operable Units.

The Pit 6 Landfill Operable Unit (also called Operable Unit 3 or OU 3) covers an area of 2.6 acres near the southwest corner of Site 300. From 1964 to 1973, waste was buried in nine unlined debris trenches and animal pits at the Pit 6 Landfill. The waste included laboratory equipment, craft shop debris, and biomedical waste. DOE/LLNL excavated the portion of waste containing depleted uranium in 1971. Volatile organic compounds, tritium, nitrate, and perchlorate were detected in ground water immediately downgradient from the landfill. The Pit 6 Landfill was capped and closed in 1997 under CERCLA to prevent further leaching of contaminants resulting from percolation of rainwater through the buried waste and prevent the potential flux of volatile organic compound vapors through the soil.

The Site-Wide Operable Unit (also called OU 8) is comprised of release sites where there was no significant contamination found that can impact the ground water, or human health or the

environment. A monitoring only remedy has been selected for these release sites, which include buildings and firing tables used for testing of high explosive materials and landfills where firing table gravel and debris were disposed. The Site-Wide OU consists of the following areas of Site 300: Building 801 and Pit 8 Landfill, Building 845 and Pit 9 Landfill, Building 833, Building 851, and the Pit 2 Landfill. Releases to ground water include volatile organic compounds and uranium-238.

CLEANUP OBJECTIVES AND PROGRESS

The selected remedy for the Pit 6 Landfill Operable Unit includes: (1) monitoring ground water to evaluate the effectiveness of the remedy in achieving cleanup standards, and to ensure there is no impact to downgradient water-supply wells, (2) institutional controls, such as access/land-use restrictions and measures to prevent use of contaminated ground water and onsite worker exposure to contaminants volatilizing from surface water, (3) monitored natural attenuation of volatile organic compounds and tritium in ground water, and (4) inspecting the Pit 6 Landfill cover periodically for damage that could compromise its integrity and repair any damage found. Tritium activities in ground water are currently well below its drinking water cleanup standard, and perchlorate concentrations are below detection limits. Volatile organic compounds and nitrate concentrations in ground water currently exceed drinking water cleanup standards in only one well.

The Site-Wide Operable Unit contains the Site 300 areas with final remedies consisting of monitoring, risk and hazard management, and landfill inspection and maintenance selected in the 2008 Record of Decision. The current status of ground water contaminants of concern are as follows:

- Building 801/Pit 8 Landfill: Perchlorate concentrations are currently below detection limits. Volatile organic compounds and nitrate concentrations currently exceed drinking water cleanup standards in only one well. There have been no contaminant releases from the Pit 8 Landfill
- Building 833: Trichlorethylene is currently detected in only one well at a concentration above its drinking water cleanup standard.
- Building 845/Pit 9 Landfill: No contaminants of concern were identified in ground water. There have been no contaminant releases from the Pit 9 Landfill.
- Building 851: Uranium activities are well below the drinking water cleanup standard and are within the range of background levels.
- Pit 2 Landfill: Nitrate, the only contaminant of concern in ground water, is below the drinking water cleanup standard. Uranium activities are well below the drinking water cleanup standard and are within the range of background levels. There have been no new contaminant releases from the Pit 2 Landfill.

FIVE-YEAR REVIEW RESULTS

The remedy at LLNL Site 300, OU 3 and OU 8, is expected to be protective upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled. The remedy protects human health and the environment in the short term because

there is no current exposure to site contamination and remedial treatment systems are effectively treating ground water and soil gas. With exception of the Building 851 Firing Table, the remedy will protect human health and the environment in the long term because after the completion of active remedial activities land use controls will prevent exposure pathways until such time it is demonstrated that there no longer is a risk to human health from unrestricted use and unlimited exposure scenarios. With regard to the Building 851 Firing Table, DOE plans to conduct further characterization to assess the risk and potentially modify the remedy accordingly, to be protective in the long term.

FOR MORE INFORMATION

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